Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently amended) A DUV-capable microscope objective, comprising:

a plurality of lens elements, on an object side, to generate convergent light;

a penultimate lens element which receives the convergent light from the plurality of lens elements; and

a further lens element, on an image side, which receives light from the penultimate lens element; wherein

~~a lens group that comprises a plurality of lens elements~~ the plurality of lens elements and the penultimate lens element and the further lens element are made of quartz glass and fluorite,

~~wherein~~ the objective has a DUV focus at a DUV wavelength λ_{DUV}, wherein λ_{DUV} is one wavelength in the deep ultraviolet region between 200 nm and 300 nm,

~~wherein~~ the objective has an IR focus for an IR wavelength λ_{IR}, wherein λ_{IR} is one wavelength in the infrared region greater than or equal to 760 nm, at the same focal point as the DUV focus at λ_{DUV}, and ~~wherein a~~

the penultimate lens element ~~of the lens group~~ comprises a concave configuration on both sides, wherein an object-side outer radius of the penultimate lens element is smaller than its image-side outer radius.

2. (Previously presented) The objective as defined in Claim 1, wherein the penultimate lens element is a doublet, concave on both sides, and has a material sequence of quartz glass/fluorite in an imaging direction.

3. (Previously presented) The objective as defined in Claim 1, wherein the penultimate lens element is a diverging triplet lens, concave on both sides, and has a material sequence of quartz glass/fluorite/quartz glass in an imaging direction.

4. (Previously presented) The objective as defined in Claim 1, wherein the penultimate lens element is a diverging triplet lens, concave on both sides, that has a material sequence of quartz glass/lithium fluoride/quartz glass in an imaging direction.

5. (Previously presented) The objective as defined in Claim 1, wherein the penultimate lens element is diverging, is concave on both sides, and comprises individual lenses made of quartz glass and fluorite.

6. (Previously presented) The objective as defined in Claim 1, wherein the penultimate lens element is diverging, is concave on both sides, and comprises individual lenses made of quartz glass and lithium fluoride.

7. (Currently amended) The objective as defined in Claim 1, wherein the objective comprises, as viewed in an imaging direction:

a converging individual first lens comprising quartz glass as a front lens element disposed closest to an object being imaged;

a converging individual second lens element comprising fluorite;

a first doublet comprising a diverging third lens comprising quartz glass and a converging fourth lens comprising fluorite;

a first triplet combined of a fifth lens comprising fluorite, a sixth lens comprising quartz glass and a seventh lens comprising fluorite;

a second triplet combined of an eighth lens comprising quartz glass and a ninth lens comprising fluorite and a tenth lens comprising quartz glass;

a converging lens group comprising one or more lenses;

and

the further lens element in the form of a diverging doublet comprising a converging lens comprising quartz glass and a diverging lens comprising fluorite,

wherein the penultimate lens element is diverging and is disposed between the converging lens group and the diverging doublet.

8. (Previously presented) The objective as defined in Claim 7, wherein the converging individual second lens and the first doublet are combined into a triplet lens having a material sequence fluorite/quartz glass/fluorite.

9. (Previously presented) The objective as defined in Claim 7, wherein the objective has a DUV focus in a DUV wavelength region λ_{DUV} = 248 nm ± 8 nm or in a DUV wavelength region λ_{DUV} = 266 nm ± 8 nm.

10. (Previously presented) The objective as defined in Claim 7, wherein the DUV focus includes a DUV wavelength region λ_{DUV} = 248 nm ± 8 nm and an IR focus at λ_{IR} = 760 nm.

11. (Previously presented) The objective as defined in Claim 7, wherein the DUV focus includes a DUV wavelength region λ_{DUV} = 248 nm ± 8 nm and an IR focus at λ_{IR} = 825 nm.

12. (Previously presented) The objective as defined in Claim 7, wherein the DUV focus includes a DUV wavelength region λ_{DUV} = 248 nm ± 8 nm and an IR focus at λ_{IR} = 885 nm.

13. (Previously presented) The objective as defined in Claim 7, wherein the DUV focus includes a DUV wavelength region λ_{DUV} = 248 nm ± 8 nm and an IR focus at λ_{IR} = 905 nm.

14. (Previously presented) The objective as defined in Claim 8, wherein the DUV focus includes a DUV wavelength region $\lambda_{DUV} = 266$ nm $\pm$ 8 nm and an IR focus at $\lambda_{IR} = 780$ nm.

15. (Previously presented) The objective as defined in Claim 7, wherein the DUV focus includes a DUV wavelength region $\lambda_{DUV} = 266$ nm $\pm$ 8 nm and an IR focus at $\lambda_{IR} = 785$ nm.

16. (Previously presented) The objective as defined in Claim 8, wherein the DUV focus includes a DUV wavelength region $\lambda_{DUV} = 266$ nm $\pm$ 8 nm and an IR focus at $\lambda_{IR} = 845$ nm.

17. (Previously presented) The objective as defined in Claim 1, wherein λ_{IR} has a wavelength such that 760 nm $\geq \lambda_{IR} \geq$ 920 nm.

18. (Previously presented) The objective as defined in Claim 1, wherein the objective has a focal length of 1.6 mm or less.

19. (Currently amended) A DUV-capable microscope, comprising:

an objective comprising a plurality of lens elements, on an object side, to generate convergent light; a penultimate lens element which receives the convergent light from the plurality of lens elements; and a further lens element, on an image side, which receives light from the penultimate lens element, wherein the objective has a DUV focus at a DUV wavelength λ_{DUV}, wherein λ_{DUV} is one wavelength in the deep ultraviolet region between 200 nm and 300 nm, wherein the objective has an IR focus for an IR wavelength λ_{IR}, wherein λ_{IR} is one wavelength in the infrared region greater than or equal to 760 nm, at the same focal point as the DUV focus at λ_{DUV}, and wherein ~~a~~ the penultimate lens element comprises a concave configuration on both sides, wherein an object-side outer radius of the penultimate lens element is smaller than its image-side outer radius; and

an IR laser autofocus system in optical communication with the objective to provide light at the IR wavelength λ_{IR} and auto-focussing.

20. (Previously presented) The microscope as defined in Claim 19, wherein the objective has a focal length of 1.6 mm or less.

21. (Cancelled).

22. (Currently amended) A microscope objective, comprising:

a converging first lens disposed closest to an object being imaged;

a converging second lens disposed along an optical axis after the first lens;

a first doublet lens disposed along the optical axis after the second lens;

a first triplet lens disposed along the optical axis after the first doublet lens;

a second triplet lens disposed along the optical axis after the first triplet lens;

a converging lens group comprising one or more lenses disposed along the optical axis after the second triplet lens;

a diverging penultimate lens comprising concave outer sides, wherein an object-side outer radius is smaller than an image-side outer radius disposed along the optical axis after the converging lens group; and

a diverging doublet lens disposed after the penultimate lens,

wherein the objective has a focal length of 1.6 mm or less at a DUV wavelength λ_{DUV}, wherein λ_{DUV} is one wavelength in the deep ultraviolet region between 200 nm and 300 nm, and at an IR wavelength λ_{IR}, wherein λ_{IR} is one wavelength in the infrared region greater than or equal to 760 nm, and wherein a numerical aperture of the objective is at least 0.8.

23. (Cancelled).

24. (Currently amended) A DUV-capable microscope, comprising:

an objective comprising a plurality of lens elements, on an object side, to generate convergent light; a penultimate lens element which receives the convergent light from the plurality of lens elements; and a further lens element, on an image side, which receives light from the penultimate lens element; wherein

the objective has a DUV focus at a DUV wavelength, ~~wherein~~

the objective has an IR focus for an IR wavelength at the same focal point as the DUV focus, and ~~wherein~~

~~a~~ the penultimate lens element ~~of the plurality of lens elements~~ comprises a concave configuration on both sides, wherein an object-side outer radius of the penultimate lens element is smaller than its image-side outer radius.

25. (Previously presented) The objective as defined in Claim 1, wherein the objective has a numerical aperture of at least 0.90.

26. (Previously presented) The microscope as defined in Claim 19, wherein the objective has a numerical aperture of at least 0.90.

27. (Previously presented) The objective as defined in Claim 22, wherein the objective has a numerical aperture of at least 0.90.

28. (Previously presented) The microscope as defined in Claim 24, wherein the objective has a numerical aperture of at least 0.90.